

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Erik Dahlman, <i>et al.</i>	§	Group Art Unit:	2684
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Serial No:	09/873,309	§	Examiner:	Raymond S. Dean
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For: Methods and Arrangements in a Telecommunications System

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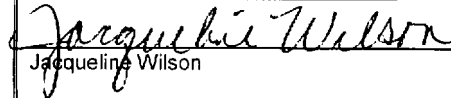
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APPEAL UNDER 35 U.S.C. §134

This Brief is submitted in connection with the decision of the Primary Examiner set forth in Final Official Action dated August 15, 2005, finally rejecting claims 1-20, and in response to the Notification of Non-Compliant Appeal Brief dated May 17, 2006.

**NOTICE REGARDING PRIOR APPEAL
AND REQUEST FOR REFUND OF APPEAL FEE**

In an Office Action dated April 9, 2004, the Examiner first rejected Applicants' claims as being unpatentable over Baum, *et al.* (US 6,385,462) in view of Chuah, *et al.* (US 6,693,952). The Applicants filed a response traversing that rejection, but the Examiner issued a final rejection on December 1, 2004, stating that Applicants' arguments were "not persuasive." The Applicants responded to the final rejection with substantially the same arguments, but the Examiner issued an Advisory Action on February 24, 2005, upholding the rejection.

In view of the Examiner's Advisory Action upholding his rejection of the claims, the Applicants then filed an Appeal based wholly on the previously submitted arguments traversing the Examiner's rejection. The Examiner did not file a reply to Applicants' appeal brief, but issued a new Office Action on April 19, 2005, rejecting Applicants' claims on a new combination of references including Baum and a new reference (Willenegger). The Examiner's new Office Action did not state his reasons for not answering Applicants' appeal brief, nor did it state his reasons for apparently accepting Applicants' arguments which he had previously rejected three times as being "not persuasive." The Applicants filed a response to that Office Action rejecting the claims over Baum in view of Willenegger, and the Examiner has responded with the present Final Office Action, in which he stated that he had determined that his prior rejection which the Applicants had previously appealed "would not withstand the scrutiny of an appeal conference."

In view of the time and expense incurred by the Applicants to prepare and file an appeal of the Examiner's prior rejection based on Baum, and the Examiner's failure to respond to that appeal, the Applicants' respectfully request that the previously-paid appeal fee be credited to this appeal. The Commissioner, however, is hereby authorized to charge any appropriate fees under 37 C.F.R. §41.20(b)(2) that may be required by this paper, and to credit any overpayment, to Deposit Account No. 50-1379.

Real Party in Interest

The real party in interest, by assignment, is: Telefonaktiebolaget LM Ericsson (publ)
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Related Appeals and Interferences

None.

Status of Claims

Claims 1-20 are pending in the present application, each of which are finally rejected and form the basis for this Appeal. Claims 1-13 and 15-20 stand rejected,

under 35 U.S.C. §103(a), as being unpatentable over Willenegger (US 2002/0009061) in view of Baum, *et al.* (US 6,385,462); and Claim 14 as being unpatentable over Willenegger in view of Baum and further in view of Balachandran, *et al.* (US 6,567,375 B2). Claims 1-20, including all amendments to the claims, are attached in the Claims Appendix. The rejection of claims 1-20 is appealed.

Status of Amendments

The claims set out in the Claims Appendix include all entered amendments. No amendment has been filed subsequent to the final rejection.

Summary of Claimed Subject Matter

The claimed invention selects a modulation and coding scheme on a shared first channel based on the instantaneous transmit power of a second channel, which is dedicated ("unique") for each mobile user in a cellular radio system. The Applicants' invention recognizes that in some systems, such as CDMA-based systems, the dedicated channel (e.g., dedicated physical channel "DPCH") is power-controlled, and thus the signal-to-interference ratio at the receiver is, more or less, constant; *i.e.*, no information about the varying radio channel quality is available at the receiver. Furthermore, using the transmitted power level of the dedicated (second) channel to control the modulation and coding scheme of the shared first channel, rather than the received power level, eliminates the need for feedback signaling from the receiver (e.g., mobile station) to the transmitter (e.g., base station).

Claim 1

Claim Element	Specification Reference
A method of transmitting information in a radio communication system comprising at least one transmitter and at least one receiver, the method comprising the steps of:	Page 9, line 17 to page 10, line 25.
transmitting first information in a first channel from the at least one transmitter to the at least one receiver, using in the transmitting a modulation and/or coding scheme and adapting the modulation and/or coding scheme to give a secure communication of the first information, and	Page 9, lines 17 – 25.

transmitting second information in a second channel from the at least one transmitter to the at least one receiver and setting the power used for transmitting in the second channel to give a secure communication of the second information, wherein in the step of transmitting the first information, the choice of the modulation and/or coding scheme is controlled by the level of the power at each instant set for transmitting in the second channel.	Page 9, line 25 to page 10, line 7; page 10, lines 8 – 25; page 11, line 18 to page 12, line 15.
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Claim 16

Claim Element	Specification Reference
A method of modifying the transmission parameters in a radio communication system comprising at least one transmitter, at least one receiver, a first channel for transmitting first information from the at least one transmitter to the at least one receiver, and a second channel for transmitting second information from the at least one transmitter to the at least one receiver, the method comprising the steps of	Page 9, line 17 to page 10, line 7.
setting the power used for transmitting in the second channel; and	Page 9, line 25 to page 10, line 7.
adapting a modulation and/or coding scheme used in transmitting in the first channel, wherein in the step of adapting, the choice of the modulation and/or coding scheme is controlled by the level of the power at each instant set for transmitting in the second channel.	Page 10, lines 8 – 25; page 11, line 18 to page 12, line 15.

Claim 18

Claim Element	Specification Reference
A radio communication system comprising at least one transmitter, at least one receiver, a first channel for transmitting first information from at least one transmitter to the at least one receiver, and a second channel for transmitting second information from the at least one transmitter to the at least	Page 9, line 17 to page 10, line 25; page 11, line 18 to page 12, line 15.

one receiver, the system comprising:	
means for setting the power used for transmitting in the second channel, and	Page 9, line 25 to page 10, line 7.
means for adapting a modulation and/or coding scheme used in transmitting in the first channel, comprising	Page 10, lines 8 – 25.
means for controlling the choice of the modulation and/or coding scheme by means of the level of the power at each instant set for transmitting in the second channel.	Page 10, lines 8 – 25; page 11, line 18 to page 12, line 15.

The specification references listed above are provided solely to comply with the USPTO's current regulations regarding appeal briefs. The use of such references should not be interpreted to limit the scope of the claims to such references, nor to limit the scope of the claimed invention in any manner.

Grounds of Rejection to be Reviewed on Appeal

- 1.) Claims 1-13 and 15-20 stand rejected, under 35 U.S.C. §103(a), as being unpatentable over Willenegger (US 2002/0009061) in view of Baum, *et al.* (US 6,385,462); and claim 14 stands rejected as being unpatentable over Willenegger in view of Baum and further in view of Balachandran, *et al.* (US 6,567,375 B2).

Argument

- 1.) Rejections under 35 U.S.C. 103(a) over U.S. Patent Application 2002/0009061 in view of United States Patent No. 6,385,462 and United States Patent No. 6,567,375 B2

Claims 1-20

The Examiner rejected claims 1-13 and 15-20 as being unpatentable over Willenegger (US 2002/0009061) in view of Baum, *et al.* (US 6,385,462), and claim 14 as being unpatentable over Willenegger in view of Baum and further in view of Balachandran, *et al.* (US 6,567,375 B2) The Applicants traverse the rejections.

First, the Applicants wish to address a misrepresentation made by the Examiner in the Final Office Action dated August 15, 2005. Therein, the Examiner states that he "agrees with Applicants assertion that Baum teaches that the transmit power of a

channel is used to control the choice of modulation and/or coding scheme on said same channel." **This statement by the Examiner is incorrect.** In the Examiner's prior Office Action, dated April 19, 2005, **the Examiner made that assertion.** In response to that Office Action, the Applicants stated that:

To overcome that deficiency of Willenegger, the Examiner has looked to the teachings of Baum, asserting that Baum teaches "wherein in the step of transmitting the first information, the choice of the modulation and/or coding scheme is controlled by the level of the power at each instant set for transmitting in a channel (column 4, lines 19-25)." It is noted with **significance**, that the Examiner made this same assertion as to the teachings of Baum in his prior Final Office Action dated December 1, 2004. (FOA; page 3) **Even assuming that Baum does teach what the Examiner asserts, that is not what the Applicant has claimed.** (emphasis added)

Therefore, it can be clearly seen that the Applicants **DID NOT** assert that Baum teaches anything, but only stated that even assuming as true what **the Examiner** asserted Baum taught, it was not what the Applicants have claimed.

Now, to address the Examiner's specific rejections, the Applicants first address the rejection of Claim 1, which recites:

1. A method of transmitting information in a radio communication system comprising at least one transmitter and at least one receiver, the method comprising the steps of:

transmitting first information in a first channel from the at least one transmitter to the at least one receiver, using in the transmitting a modulation and/or coding scheme and adapting the modulation and/or coding scheme to give a secure communication of the first information, and

transmitting second information in a second channel from the at least one transmitter to the at least one receiver and setting the power used for transmitting in the second channel to give a secure communication of the second information, wherein in the step of transmitting the **first** information, the choice of the **modulation and/or coding scheme** is controlled by the level of the power at each instant set for transmitting in the **second** channel. (emphasis added)

As described in Applicants' specification, the claimed invention selects a **modulation and coding scheme** on a shared **first** channel **based on the instantaneous transmit power** of a **second** channel, which is dedicated ("unique") for each user. The Applicants' invention recognizes that in some systems, such as CDMA-based systems,

the dedicated channel (e.g., dedicated physical channel "DPCH") is power-controlled, and thus the signal-to-interference ratio at the receiver is, more or less, constant; i.e., no information about the varying radio channel quality is available at the receiver. Furthermore, using the transmitted power level of the dedicated (second) channel to control the modulation and coding scheme of the shared first channel, rather than the received power level, eliminates the need for feedback signaling from the receiver (e.g., mobile station) to the transmitter (e.g., base station). The Examiner has not pointed to any teaching in Willenegger or Baum that discloses those claimed features and, thus, he has failed to establish a *prima face* case of obviousness.

As the Examiner notes with respect to claim 1, Willenegger does not teach a system wherein the choice of the modulation and/or coding scheme for information transmitted in a first channel is controlled by the level of the power at each instant set for transmitting in a second channel. To overcome that deficiency of Willenegger, the Examiner has looked to the teachings of Baum, asserting that Baum teaches "wherein in the step of transmitting the first information, the choice of the modulation and/or coding scheme is controlled by the level of the power at each instant set for transmitting in a channel (column 4, lines 19-25)." As previously noted, the Examiner made this same assertion as to the teachings of Baum in his prior Final Office Action dated December 1, 2004. (FOA; page 3) Even assuming that Baum does teach what the Examiner asserts, that is not what the Applicant has claimed. The limitation of claim 1 to which the Examiner refers actually states that: "wherein in the step of transmitting the first information [on the first channel], the choice of the modulation and/or coding scheme is controlled by the level of the power at each instant set for transmitting in the second channel." (emphasis added) In other words, the transmit power of a second channel is used to control the choice of modulation and/or coding scheme on the first channel. This is not disclosed by Baum.

At column 4, lines 19-25, as referenced by the Examiner, Baum teaches: "A modulation/coding rate unit 109 assigns a modulation/coding rate to each of the planned links based on a signal quality associated with the transmit power assigned to the link." (emphasis added) In other words, Baum discloses using the signal quality associated with the transmit power assigned to a link to control the choice of modulation

and/or coding scheme on that same link. This aspect of Baum is not the same as the limitation of claim 1, which recites that the transmit power of a second channel is used to control the choice of modulation and/or coding scheme on the first channel. Indeed, in the Examiner's prior Final Office Action, he essentially conceded that Baum fails to disclose that claim limitation by stating that "Baum does not specifically teach a first channel transmitting first information and a second channel transmitting second information." (FOA, page 4; emphasis added) **If Baum doesn't teach such first and second channels, then it can't teach using the transmit power of a second channel to control the choice of modulation and/or coding scheme on the first channel.** Therefore, whereas Willenegger and Baum fail to disclose the claimed limitation, the Examiner has failed to establish a *prima facie* case of obviousness of claim 1.

Whereas independent claims 16 and 18 recite limitations analogous to those of claim 1, those claims are also patentable over Willenegger in view of Baum. Furthermore, whereas claims 2-15¹ and 19 are dependent from claim 1 and claims 17 and 20 are dependent from claim 16, and includes the limitations of their respective base claims, those claims are also patentable over Willenegger in view of Baum.

* * *

¹ The Examiner rejected claim 14 over Willenegger in view of Baum and further in view of Balachandran *et al.* (US 6,567,375 B2). As noted, the Examiner has failed to establish a *prima facie* case of obviousness of claim 1. Furthermore, the Examiner has not pointed to any teaching in Balachandran to overcome the failure of Willenegger and Baum to disclose the claimed limitations, in claim 1, of using the transmit power of a second channel to control the choice of modulation and/or coding scheme on the first channel. Therefore, whereas claim 14 is dependent from claim 1 and includes the limitations thereof, it is also patentable over Willenegger in view of Baum and further in view of Balachandran.

CONCLUSION

In view of the foregoing remarks, the Applicants believe all of the claims currently pending in the Application to be in a condition for allowance. The Applicants, therefore, respectfully request that the Board reverse the Examiner's claim rejections.

Respectfully submitted,



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CLAIMS APPENDIX

1. (Previously Presented) A method of transmitting information in a radio communication system comprising at least one transmitter and at least one receiver, the method comprising the steps of:

transmitting first information in a first channel from the at least one transmitter to the at least one receiver, using in the transmitting a modulation and/or coding scheme and adapting the modulation and/or coding scheme to give a secure communication of the first information, and

transmitting second information in a second channel from the at least one transmitter to the at least one receiver and setting the power used for transmitting in the second channel to give a secure communication of the second information, wherein in the step of transmitting the first information, the choice of the modulation and/or coding scheme is controlled by the level of the power at each instant set for transmitting in the second channel.

2. (Previously Presented) A method according to claim 1, wherein the second channel is transmitted from the same transmitter as the first channel.

3. (Previously Presented) A method according to claim 1, wherein the second channel is transmitted from one of a plurality of transmitters, comprising the transmitter that transmits the first channel.

4. (Previously Presented) A method according to claim 1, wherein the first physical channel is shared between several users and each user has a unique second channel wherein the modulation and coding scheme used by the first channel is determined by the instantaneous transmitted power of the second channel, the user of the second channel being currently served by the first channel.

5. (Previously Presented) A method according to claim 1, wherein the transmitter is a base station and the receiver is a mobile station.

6. (Previously Presented) A method according to claim 1, wherein the first channel is a shared downlink channel and the second channel is a dedicated physical channel.

7. (Previously Presented) A method according to claim 6, wherein the modulation and/or coding scheme used on the downlink shared channel when transmitting to a specific receiver is controlled by the power control commands transmitted by the receiver in the reverse link.

8. (Previously Presented) A method according to claim 7, wherein the power control commands are transmitted in combination with other information.

9. (Previously Presented) A method according to claim 6, wherein the power of the dedicated physical channel is mapped into a suitable modulation and coding scheme for the downlink shared channel.

10. (Previously Presented) A method according to claim 9, wherein a varying modulation and coding scheme is used on the downlink shared channel.

11. (Previously Presented) A method according to claim 9, wherein the mapping is static.

12. (Previously Presented) A method according to claim 9, wherein the mapping is dynamic.

13. (Previously Presented) A method according to claim 11, wherein a predefined table is used for mapping the power level to the modulation and coding scheme.

14. (Previously Presented) A method according to claim 12, wherein the mapping is changed as a function of some retransmission requests for data blocks being retransmitted over the shared channel.

15. (Previously Presented) A method according to claim 12, wherein at least two base stations are transmitting at the same time to the same mobile station, wherein the power of the DPCH is multiplied with a constant k , $k \geq 1$, said constant being used for determining the modulation and coding scheme of the DSCH, both channels DPCH and DSCH transmitting from the same base station.

16. (Previously Presented) A method of modifying the transmission parameters in a radio communication system comprising at least one transmitter, at least one receiver, a first channel for transmitting first information from the at least one transmitter to the at least one receiver, and a second channel for transmitting second information from the at least one transmitter to the at least one receiver, the method comprising the steps of

setting the power used for transmitting in the second channel; and

adapting a modulation and/or coding scheme used in transmitting in the first channel, wherein in the step of adapting, the choice of the modulation and/or coding scheme is controlled by the level of the power at each instant set for transmitting in the second channel.

17. (Previously Presented) A method according to claim 16, wherein at least two transmitters are transmitting at the same time, wherein the power of the second channel is multiplied with a constant k .

18. (Previously Presented) A radio communication system comprising at least one transmitter, at least one receiver, a first channel for transmitting first information from at least one transmitter to the at least one receiver, and a second channel for transmitting second information from the at least one transmitter to the at least one receiver, the system comprising:

means for setting the power used for transmitting in the second channel, and

means for adapting a modulation and/or coding scheme used in transmitting in the first channel, comprising

means for controlling the choice of the modulation and/or coding scheme by means of the level of the power at each instant set for transmitting in the second channel.

19. (Previously Presented) A computer program product directly loadable into the internal memory of a digital computer comprising software portions for performing the steps of claim 1, when said product is run on a computer.

20. (Previously Presented) A computer program product directly loadable into the internal memory of a digital computer comprising software portions for performing the steps of claim 16, when said product is run on a computer.

* * *

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.